



Message from the President

Welcome to the autumn edition of our newsletter, which is published in the run-up to the IAF's International Astronautical Congress (IAC). As you can imagine, with less than a week to go, the entire IAF staff is focused on making the 63rd IAC an exciting meeting, networking and social point for the entire space community. Everyone involved in its organisation has been working extremely hard to make it a success and I would like to express my thanks, in advance, for what promises to be a stellar occasion.

As you know, the IAC is being held for the first time in Naples, Italy, and you will find some helpful logistical information in the pages that follow. Please note the change in schedule on Monday, the opening day.

We are looking forward to the Congress with great anticipation and I hope all of you will attend and enjoy it.

The newsletter also features the latest on IAF activities and a selection of members' news in the Members' Corner. Our members are crucially important to us. This may 'go without saying' but I make no apologies for spelling it out once again and I encourage all of you to consider submitting short items for future newsletters, to share your news with the wider IAF community.

I hope you enjoy the newsletter and look forward to seeing you in Naples!

Prof. Dr Berndt Feuerbacher
President, International Astronautical Federation

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IAC 2012 Brochure

DATES AND DEADLINE REMINDER

IAC Presentation submission deadline:
26 September 2012

UPCOMING EVENTS

International Astronautical Congress
(1-5 October 2012)

IAF Spring Meetings (March 2013)

Update on IAC 2015 Hosting Bids

The International Astronautical Congress (IAC) continues to attract outstanding bids from IAF member organisations competing to host the Congress and its associated space exhibition. In recent years the event has attracted close to 3000 participants including almost 2000 delegates and press representatives and more than 600 students and young professionals.

This year, no less than four competitive bids were received by the 29 June 2012 deadline to host the 66th IAC in 2015. Site inspections were conducted in August whilst updated proposals were due by 13 September 2012. Regrettably, one of the bidders, Istanbul's Technical University, withdrew at this point. The three remaining bidding organisations and locations are detailed below. The winning bid will be announced by the IAF General Assembly during the 63rd IAC in Naples, Italy.



Geo-Informatics and Space Technology Development Agency (GISTDA) – Pattaya, Thailand

5-9 October 2015

GISTDA is the Thai Government agency tasked with managing, coordinating and promoting the nation's interests in space technology, particularly in remote sensing and geographic information systems. Thailand's heritage in space-based remote sensing dates back to its utilisation of NASA's ERTS-1 satellite, launched in 1972. GISTDA has been a member of the IAF since 2010.

Pattaya City is located on the east coast of the Gulf of Thailand, about 165km southeast of Bangkok. Situated within the industrialised Eastern Seaboard Zone, it is a popular beach resort and the second most visited city in Thailand after Bangkok.



Proposed IAC venue

Israel Space Agency (ISA) - Jerusalem, Israel

12-16 October 2015

ISA is the coordinating body for space endeavours in Israel. The nation's space experience began in 1988 with the launch of Ofeq 1 by its own Shavit launch vehicle, affiliating Israel to the club of nations capable of launching their own satellite. Since then, Israel has developed its capabilities in areas as diverse as communications satellite technology and manned spaceflight. ISA has been a member of the IAF since 1996.

Jerusalem is one of the oldest cities in the world, with an abundance of historic sites. The city has been Israel's key tourist attraction for many years and was also host to the 45th IAC in 1994.



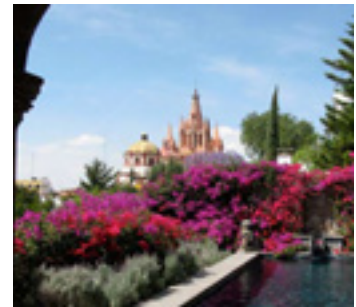
Proposed IAC venue



Mexican Space Agency – Guadalajara, Mexico 28 September – 2 October 2015

The **Mexican Space Agency (Agencia Espacial Mexicana)** was formed in July 2010 to coordinate the nation’s space interests. In common with many emerging space nations, Mexico has experience in remote sensing and communications applications but is also interested in disaster management, security and other socially beneficial uses of space. The Agency has been a member of the IAF since 2011.

Guadalajara, known as “The Pearl of the West”, is Mexico’s second largest city, a major tourist and industrial hub and a key centre for technology in the country. Also known as the cultural centre of Mexico, Guadalajara has a very young population and boasts colonial architecture, a mild climate and a vibrant musical scene.



Proposed IAC venue

The IAF Secretariat Continues to Grow

Having welcomed Dr Christian Feichtinger as IAF’s new Executive Director on 1 January 2012, the IAF Secretariat continues to grow. No less than three new staff members have by now become a part and work on the ever-busy and exciting activities of the office:



MYRIAM MORABET, TECHNICAL ACTIVITIES OFFICER
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- support to IAF technical committees
- coordination of IAC technical sessions and authors’ interface
- coordination with International Programme Committee (IPC) Steering Group
- IAC archive management



VANYA ANGELOVA, PUBLIC AFFAIRS AND COMMUNICATIONS OFFICER
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- IAF corporate and events communication
- IAF publications
- public affairs
- organisation of other IAF events
- media relations



ARMELLE DUTRUC, ADMINISTRATIVE SUPPORT OFFICER
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- relations with associations, professional societies and museums
- support to several IAF administrative committees
- IAC on-site arrangements
- IAC registrations and room planning
- IAF Secretariat internal IT systems

Two interns are also giving us a steady and priceless hand in the preparation for the upcoming IAC:

CRISTINA POLEACOVSKI (left) - supporting communications and public affairs

GIULIA MARIA BERARDI (right) - supporting the IAF Deputy Executive Director, especially in the organisation of the IAF Global Networking Forum

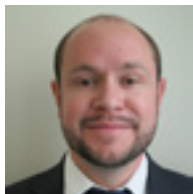


Good news never comes without a pinch of salt though: **Pierre-Francois Mouriaux**, IAF Technical Activities Coordinator, has decided it is time for a change and left the Secretariat at the end of August. He will not miss and be at the IAC in Naples. In the meantime, we would like to thank him for his outstanding work at the IAF.

The new staff will be alongside IAF's other Secretariat members, detailed below, at the IAC in Naples, except for **Juliane McCarty**, who for medical reasons will be absent and whom we all wish a speedy recovery:



CHRISTIAN FEICHTINGER, EXECUTIVE DIRECTOR
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PHILIPPE MOREELS, DEPUTY EXECUTIVE DIRECTOR AND INDUSTRY RELATIONS MANAGER
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- industry relations
- global organisation of the IAC and other IAF conferences
- IAF Global Networking Forum
- support to several IAF administrative committees
- support to IAF General Assembly, Bureau and Finance Committee
- membership development



LISA ANTONIADIS, PROGRAMMES OFFICER
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- young professionals', students' and education programmes
- International Meeting of Members of Parliament and IAC Cities Summit
- IAF awards
- support to IAF regional groups



JULIANE MCCARTY, PUBLIC AFFAIRS AND COMMUNICATIONS OFFICER
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- IAF corporate and events communication
- IAF publications
- public affairs
- media relations



VALERIE LEENHARDT, ADMINISTRATIVE ASSISTANT
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- administrative and secretariat support
- accounting
- membership administration

IAF Attends 55th Session of COPUOS

On behalf of the IAF President, Vice- President Gerard Brachet made an official statement at the **55th session of the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS)**, held in Vienna, Austria, in June 2012.

In line with the Federation's COPUOS permanent Observer status, Brachet briefed the Committee on recent IAF activities, including the 2011 IAC held in Cape Town, South Africa, the launch of the new African Regional Group, the Global Exploration Conference (GLEXP) 2012 and IAC 2012.

He then introduced a proposed IAF symposium for the 50th session of the COPUOS Science and Technology Sub-Committee (STSC), to be held in February 2013. The symposium, which traditionally takes place on the afternoon of the first day of the STSC session, will be devoted to an overview of studies and concepts for active orbital debris Removal. It will include four to five presentations covering the various aspects of the subject, from technical feasibility to potential legal issues, and provide ample time for discussion and questions from the COPUOS delegation.

As pointed out by Brachet, the issue of orbital debris and its effect on the long-term sustainability of outer space activities "became a high priority for the IAF, as it is for COPUOS, following a series of recent incidents that highlighted the threat of an increasing orbital debris population". The symposium will offer an excellent opportunity for the IAF and COPUOS/STSC to discuss these mutual concerns.

IAF at COSPAR 2012 Scientific Assembly

COSPAR was established in 1958 by the International Council of Scientific Unions (ICSU) - now the International Council for Science - at the dawn of the Space Age. Its objectives are to promote scientific research in space at an international level and provide a forum, open to all scientists, for the discussion of issues affecting space science. These objectives are achieved, amongst other means, through the organisation of Scientific Assemblies.

The **39th COSPAR Scientific Assembly** was held between 14 and 22 July 2012 at the Narayana Murthy Centre for Excellence in Mysore, India. It was organised by the Indian Space Research Organisation (ISRO) and the Indian Government's Department of Space (DOS). In addition to the usual scientific sessions, the Assembly included a number of interdisciplinary lectures, a space agency round table, an awards ceremony and a public lecture that attracted an audience of about 1000.

In line with an agreement for the provision of mutual assistance and collaboration, the IAF was involved in a support role throughout the Assembly, helping to prepare for the COSPAR Council, held on the final day, and various business panel meetings.



COSPAR 2012 Scientific Assembly opening and awards ceremony

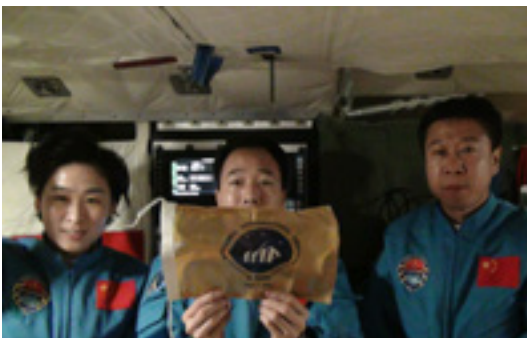


IAF Programmes Officer Lisa Antoniadis with COSPAR Executive Director Jean-Louis Fellous

IAF 60th Anniversary Flags Handover Ceremony at ILA 2012



Shenzhou-9 Taikonaut Wang LIU and CMSA Deputy Director General Ms Ping WU return the IAF flags to IAF President Berndt Feuerbacher | Credit: ESA/M. Pedoussaut



IAF flags on their latest space 'venture', aboard Tiangong-1 with Shenzhou-9 taikonauts Yang LIU, Haipeng JING and Wang LIU, who was at the ceremony

IAF receives back 300 flags, the only objects on Earth to have flown on spacecraft belonging to all nations with an active human spaceflight programme

During this year's ILA Berlin Air Show, the Federation received back the IAF 60th anniversary space-flown flags, now travelled aboard Soyuz TMA-20, the International Space Station, Space Shuttle Endeavour (STS-134), Tiangong-1 and Shenzhou-9 spacecraft.

The flags were handed over by a Chinese delegation including Mrs Ping WU, Deputy Director-General of the China Manned Space Agency (CMSA), and Ms Jinyu GONG, Deputy Secretary General of the Chinese Society of Astronautics (CSA). Representing the astronaut fraternity was Mr Wang LIU of the Astronaut Center of China who was a member of the Shenzhou-9 mission crew.

The ceremony, followed by a cocktail reception, took place on 14 September, during ILA's Astronauts' Day organised in the Air Show Space Pavilion.

The flags will be given out to IAF member organisations as tokens of recognition and gratitude during an Extraordinary Session of the IAF General Assembly on Wednesday, 4 October, at this year's IAC in Naples, Italy.

Award Winners

Frank J. Malina Astronautics Medal

awarded to an educator who has demonstrated excellence in taking fullest advantage of the resources available to promote the study of astronautics and related space science, this year goes to **Amalia Ercoli Finzi** who has presented university courses on spaceflight dynamics and orbital mechanics for almost half a century. Finzi has also held leading positions on several ESA and ASI boards and committees and is Principal Investigator for the SD2 instrument on the Rosetta spacecraft.

Allan D. Emil Memorial Award

presented for an outstanding contribution to space science, space technology, space medicine or space law, this year's award goes to **Kuminori Uesugi** who has dedicated four decades of his professional life to astrodynamics, orbital dynamics and space propulsion. His outstanding contributions to programmes such as Geotail, Hiten and Hayabusa, the first asteroid sample return mission, have significantly improved our understanding of the solar system.



Malina award winner Prof. Finzi



Emil award winner Prof. Dr. Uesugi

Luigi G. Napolitano Award

presented annually by the IAF's Education Committee to a young scientist, under 30 years of age, who has contributed significantly to the advancement of aerospace science and has presented a paper about it at the International Astronautical Congress, has received **27 applications** in reply to this year's call for nominations.

Luigi Napolitano's award winner will be announced at the IAC in Naples, where alongside Amalia Finzi and Kuminori Uesugi, (s)he will receive the award.

IAF Competitions

IAF STUDENT COMPETITION

Supported and coordinated by the IAF Space Education and Outreach Committee (SEOC) and the Student Activities Subcommittee, four countries hold an annual national student competition to select and fund the attendance and paper presentation of one to two students at the IAC Student Conference. This year's winners and their corresponding papers are as follows:



Canada

- **Myriam Lemelin**

Ilmenite Detection on the Moon by Remote Sensing: An integration of multisensory datasets over Mare Australe and Mare Ingenii regions



France

- **Geoffrey Duval**

Modelling of a Supersonic Rocket Using Architecture Analysis Language

- **Julien Vaudolon**

Experimental Study of Acceleration Processes in Hall Effect Thrusters



Germany

- **Andreas Winhard**

Solid-Borne Sound Measurement for the Independent Event Detection



United Kingdom

- **Alessandro Grasso**

Feasibility Study Study of an Ultra-Low Altitude Hyperspectral Microsatellite

- **Charlotte Lücking**

Mission and System Design of a 3U CubeSat Passive GTO to LEO Orbit Transfer

IAF INTERNATIONAL STUDENT COMPETITION

The International Student Competition involves students presenting papers at the 42nd IAC Student Conference. The winner is selected and announced at the IAC. Further details of the competition sessions will be included in the IAC Final Programme.

YOUNG SPACE LEADERS (YSL) RECOGNITION PROGRAMME AWARDS

Announced in the IAF June newsletter (see www.iafastro.org for more information), the winners of this award will be presented at and participate in the 2012 IAC.

IAF - SPACE GENERATION COUNCIL PAPER COMPETITIONS

Space is Business: challenging young minds to think about the future, past and present of entrepreneurship and investment within the space sector. The winner of the competition is Asra Najam from the University of Michigan for her paper "Game Theory Analysis for the Suborbital Reusable Launch Vehicle Research Market".

Space Solar Power: challenging individuals and small teams (1-3 people) between the ages of 18-35 to think of a new and innovative technical concept for space solar power (SSP). The winners of the competition are Ryoko Nakamura, Yoshihisa Arikawa and Takamasa Itahashi from the Japan Aerospace Exploration Agency (JAXA) for their paper "Active Typhoon Control with Space Solar Power Technology".

More information: <http://spacegeneration.org/index.php/activities/competitions>

Call for 2013 award nominations

The IAF will open and welcome nominations from its members for the 2013 Allan D. Emil Memorial Award and the Frank J. Malina Astronautics Medal on 1 December 2012.

Detailed information on each call will be published on the IAF website, Facebook and Twitter.

Useful information for attendees

Reaching the congress venue

The Congress venue, **Mostra d'Oltremare**, is in the western part of Naples (Fuorigrotta district), with a main entrance in Piazzale Tecchio.

Reaching the congress venue from the airport: Naples' Capodichino airport is 15km from the conference venue, approximately 20 minutes by road. To reach Mostra d'Oltremare by public transport, first travel to Piazza Garibaldi (main railway station) either by the Alibus shuttle or ordinary bus:

- Alibus shuttle departs from the airport every 30 minutes from 6:30 to 23:39. Journey time: 20 minutes. Cost: €3.00. Tickets can be purchased on the bus or inside the airport.
- Bus N. 3S (operated by ANM) departs from the airport every 15 minutes from 5:20 to 23:20. Journey time: 30 minutes. Cost: €1.00.

From Piazza Garibaldi you should take the local train to Napoli Campi Flegrei station, which is within walking distance of Mostra d'Oltremare.



Palacongressi, one of the main halls at this year's IAC venue Mostra D'Oltremare



Area Flaggrea theatre where the IAC Opening Ceremony will take place

Reaching the city hotels from the airport



By bus/underground: Alibus shuttle has a stop at the Piazza Municipio area where several hotels are located. For all other hotels, go to Piazza Garibaldi main railway station and then take one of the underground or bus lines that interconnect the whole city.

By taxi: you can either ask for fixed fares or taximeter. Official taxi fares from the airport vary from €15 (main railway station area, Piazza Garibaldi) to €23 (city centre and sea front hotels). Official taxis are white and bear a taxi-meter. There are taxi stands at most of the city's main piazzas. Radio taxis are also available. The starting fare is €2.60, but there are additional charges on Sundays and between 10pm and 7am and for luggage.

City transport



The easiest way to move within the city by public transport is to buy the Unico Capania Ticket which is valid for underground, buses, cable trains and local trains. It can be valid from 90 minutes (€1.20) to 3 days (daily ticket €3.60).

The Unico Capania Ticket can also be bought, on-line or in Naples, together with the Campania Artec card (www.campaniartecard.it) which allows travel in Naples (€16.00) or in and around Naples (€27.00) for three days and includes the airport Alibus shuttle plus entrance to three museums mentioned on the website. The ticket must be validated on your first trip.

See the IAC website www.iac2012.org for further information.

IAC 2012 Public Programme

The Public Programme for IAC 2012 in Naples includes no less than eight Plenary Events, three Highlight Lectures and three Late Breaking News sessions, all of which will be detailed in the IAC 2012 Final Programme.

PLENARIES

As usual, Plenary Event 1 will be the **Heads of Space Agencies** presentation, featuring the heads (or their representatives) of ESA, NASA, Roscosmos, CNSA, ISRO, CSA, JAXA and ASI.

Plenary 2 will discuss **small and medium-sized satellites** and their potential for operators.

Plenary 3 will cover **commercial space transportation** initiatives and promises a range of speakers from the new space community as well as from established agencies and contractors.

Plenary 4 will address the age-old topic of **'Improving the Quality of Life on Earth'** in terms of the societal impact of spaceflight whilst Plenary 5 will discuss **disaster monitoring from space**.

Plenary 6 will introduce a topic that is becoming evermore dominant in the space arena - the **safe and sustainable use of outer space** - while Plenary 7 will bring the **use of social media** into the frame under the title 'The Next Generation'.

Finally, Plenary 8 will be devoted to the **Italian COSMO-Skymed system** and the results achieved by the mission.



Heads of Agencies at IAC 2011 Opening Ceremony

HIGHLIGHT LECTURES

The three Highlight Lectures will, respectively, focus on the results of the **World Radiocommunication Conference 2012 (WRC-12)**, **"The new face of the Sun from Space"** and the **Kepler mission** designed to search for Earth-like planets. Given the wide range of topics, it is clear that IAC 2012 offers something for everyone!

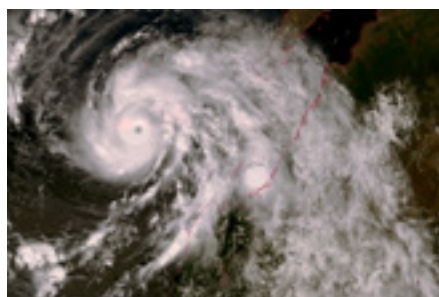
LATE BREAKING NEWS

Late Breaking News will cover the **Shenzhou-9 mission**, the **Mars Science Laboratory** and the **SpaceX Dragon ISS mission**.

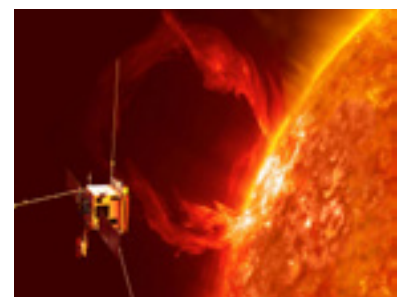
IAF will be tweeting live from each of these events, so make sure to follow www.twitter.com/iafastro



Credit: STFC



Credit: ESA



Credit: ESA-AOES

2012 IAF Global Networking Forum (formerly IAF Cluster Forum)

The constant evolution of the IAF Cluster Forum and the growing number of events it hosts inspired the IAF to create something more global and comprehensive, of even greater appeal to industry representatives, agency officials, students and young professionals, experts, decision- and policy-makers, associations and museum employees, and the general public.

The intention: to further reinforce the spirit of lively knowledge-sharing and networking which have defined Cluster from the start.

Building on the success and opportunities created by the Cluster Forums in Daejeon, South Korea (2009), Prague, Czech Republic (2010) and Cape Town, South Africa (2011), the IAF Global Networking Forum will feature a varied programme of round-table and panel discussions and networking sessions, to give

professionals and students the opportunity to share ideas, knowledge and best practices. As is custom, the Forum will take place in the IAC exhibition and this year will be located in Stand 20A, Hall 2.



Highlights of the five-day programme, which runs from Monday to Friday in parallel with the IAC programme, include:

MONDAY 1 OCTOBER

Opening

IAF Societies Alliance

Heads of Agencies Press Conference



IAC2011 Exhibition opening with Heads of Agencies

TUESDAY 2 OCTOBER: INDUSTRY DAY

with panel discussions on

The economic impacts of Satellite Navigation Systems, with

- Johann-Dietrich Wörner, *Chairman of the Executive Board, German Aerospace Center (DLR), Germany* (moderator)
- Zhiheng Fu, *Vice-President, China Great Wall Industry Corporation (CGWIC), China*
- Satoshi Fujiwara, *Senior Counselor, Office of National Space Policy, Cabinet Office, Japan*
- James K. "Kevin" McLaughlin, *Director, Space Operations & Deputy Chief of Staff for Operations, Plans and Requirements, U.S. Air Force, United States*
- Anatoly Shilov, *Deputy Director, Federal Space Agency, Russia*
- Paul Weissenberg, *Deputy DG, Enterprise and Industry Directorate-General, European Commission, Belgium*

Earth Observation Challenges, with

- Volker Liebig (invited), *Director of Earth Observation Programmes, European Space Agency, Italy* (moderator)
- Driss El Hadani, *Director, CRTS Morocco*
- Mag Iskander, *President, Information System, MDA Corporation, Canada*
- Azzedine Oussedik (invited), *DG, Agence Spatial Algérienne, Algeria*
- Eric Soulères, *CTO, Astrium Services, France*
- Martin Sweeting, *Chairman, Surrey Satellite Center, United Kingdom*



IAF 60th anniversary award given to the GPS programme represented by Maj. General Shelton at the IAF Cluster Forum 2011

Vega Launch System

- Luigi Pasquali, CEO, Thales Alenia Space, Italy (moderator)
- Stefano Bianchi, *Vega Prog. Manager, European Space Agency, Italy*
- Arturo Cramarossa, *Strategic Affairs, Italian Space Agency, Italy*
- Louis Laurent, *Senior VP, Programmes, Arianespace, France*

WEDNESDAY 3 OCTOBER: SOCIAL IMPACTS OF HUMAN SPACEFLIGHT with panel discussions on

Innovations with Earth and Space Benefits, with

- Jeffrey R. Davis, *Director, Human Health and Performance, NASA*
- Simon N. Evetts, *Medical Projects and Technology Lead, Wyle GmbH*
- William H. Gerstenmaier, *Associate Administrator, Human Exploration and Operations Mission Directorate, NASA*
- Rupert Gerzer, *Director, Institute of Aerospace Medicine, German Aerospace Center (DLR), Germany*
- Patrik Sundblad, *Human Research Coordinator, European Space Agency*

Keynote lecture: "Innovation in STEM to Inspire the Next Generation of Explorers"

by Leland D. Melvin, *Astronaut and Associate Administrator for Education, NASA*

Benefit to Earth from Space Agencies Around the World

- Volker Damann, *Head, Crew Medical Support Office, European Astronaut Dept, European Space Agency*
- Jeffrey R. Davis, *Director, Human Health and Performance (NASA)*
- Gerd Gruppe, *Member of the DLR Executive Board responsible for the German Space Administration (DLR)*
- Chiaki Mukai, *Astronaut and Vice-Director for Human Space Systems and Utilisation Mission Directorate, Japan Aerospace Exploration Agency (JAXA)*
- Patrik Sundblad, *Human Research Coordinator, European Space Agency*
- Igor B. Ushakov, *Director, IBMP, Russian Academy of Sciences (invited)*
- Carissa Vidlak, *Lead, NHHPC Social Responsibility, Wyle*



Leland D. Melvin, *NASA Astronaut and Associate Administrator for Education* during a public outreach event at IAF Cluster Forum 2011



THURSDAY 4 OCTOBER: CAREER DAY PROGRAMME

with panel discussions on

- ◆ **Women in Aerospace and Space Generation Advisory Council (SCAG)**
- ◆ **Space Networking and Recruiting in a Social (Media) Environment**
- ◆ **Tweet up session on World Space Week**, with • Buzz Aldrin, *Astronaut, Apollo XI* • Bill Nye, *CEO, The Planetary Society* • Max Grimard, *Chairman, World Space Week Association*

FRIDAY 5 OCTOBER: PUBLIC DAY PROGRAMME

featuring a **tribute to Neil Armstrong** by his colleague and second man on the Moon Buzz Aldrin and a **panel discussion with astronauts from CMSA, ESA, NASA and Roscosmos**

The IAF invites and looks forward to welcoming everyone at the IAC at the opening and activities at the IAF Global Networking Forum!

For more information:

Philippe Moreels, IAF Deputy Executive Director and Industry Relations Manager (philippe.moreels@iafastro.org)

IAC Students', Young Professionals' and Education Programme 2012

YOUNG PROFESSIONALS (YP) PROGRAMME



Antonio Moccia, IPC Co-Chair, with ESL Youth Grant winners at IAC 2011

- **Sunday 30 Sept: Welcome Reception** to YP events of the week with IAF President Berndt Feuerbacher and IAC 2012 International Programme Committee (IPC) Co-Chair Antonio Moccia, that will also give information on joining the IAC Virtual Forums (VF)

- **Tuesday 2 Oct: Reception and Industry Panel**, with Dr Lopota, President of Energie, Joanne Maguire, John Karas and Jim Crocker from Lockheed Martin, and a senior representative of EADS Astrium

- **Wednesday 3 Oct: Speed Networking and Social**, when IAF Committee Chairs meet several of the Young Professionals for a one-on-one brief introduction and discussion, followed by a social reception

IPMC YOUNG PROFESSIONALS WORKSHOP

The workshop, organised by the International Project Management Committee (IPMC) on **Friday 28 September**, will gather some 50 young professionals from around the world to discuss the opportunities and challenges they are experiencing and, in small groups, talk about:

- **Development Opportunities for Young Professionals:** i.e. the skills (from technical to managerial) the next generation workforce needs to succeed & how organisations can support and encourage industrial assignments of young professionals

- **Cultural Environment and Understanding for Young Professionals:** i.e. motivating factors and support from senior practitioners & how working practices and conditions affect a Young Professional's sense of job satisfaction and career development.

Workshop conclusions will form a written report, later available to interested IAF member organisations.

More information and contact: Jim Zimmerman (jzimmerman [at] space-services.com)

CROSS-CULTURAL PRESENTATION WORKSHOP

The workshop, run by the International Space University (ISU)'s Carol Carnett and Scott Madry on the morning of **Sunday 30 September**, will involve Next Generation Plenary Event speakers and Emerging Space Leaders (ESL) grant awardees who will do a 'dry run' of their IAC presentation, receive field questions from a peer audience and receive evaluation and feedback from the workshop instructors.

STUDENT PROGRAMME

This year's Student Programme, organised by the International Space Education Board (ISEB), includes **panel sessions**, 13:00 - 14:00 on Tues, Wed, Thurs and Fri of the IAC, on respectively **Human Exploration, Space Applications and Bridging from Student to YP**. Student presentations of their own research, 11:00 - 12:00, will also take place on these days.

Sunday 30 September is an Orientation Day, with pizza-making in the afternoon and a reception in the evening. On the following day – IAC's first day - students will join other delegates at the **Heads of Agencies Plenary Event** and, later, meet agency heads in a specially organised **Q&A session in the International Student Zone**.

And of course, students won't want to miss the **Opening Ceremony and Welcome Reception** that evening. It promises to be a busy day and an interesting week!



Winners of the IAF student competition during the IAC 2011 Closing ceremony

IAF members from around the globe announce recent news, noteworthy accomplishments, forthcoming events or programmes and other items of interest affecting their organisation

GOOD YEAR FOR ITALIAN SPACE ACTIVITY

A number of space activities in 2011 confirmed the **Italian Space Agency (ASI)** as a leading actor in the space field. Most significantly, completion of the ISS was realised through fundamental Italian contributions: the pressurised modules (Nodes 2 and 3), the seven-windowed Cupola and the Permanent Multipurpose Module (PMM), all of which were built in Italy.

Last May, two Italian astronauts flew together aboard the ISS to celebrate the 150th anniversary of the Italian Republic. A few weeks ago, Capt. Samantha Cristoforetti, an ESA astronaut, was also officially appointed to a long duration ISS mission in 2014, following the flight of Capt. Luca Parmitano already scheduled for May 2013. Last but not least, on 13 February 2012, an Italian dream became reality: the launch of the Vega small launcher successfully took place from the European spaceport in French Guiana, opening a new era for low-cost access to space.

AUSTRALIA'S CSIRO AND SPACE POLICY UNIT SUPPORT GLOBAL SPACE ACTIVITIES

In May 2012, Australia-New Zealand were jointly selected with Southern Africa to host the €1.5 billion Square Kilometre Array (SKA) radio-telescope. The SKA will consist of thousands of antennas linked together by high-bandwidth optical fibre to act as a single large instrument with a collecting area approximating one square kilometre.

Construction of the SKA Phase 1 is expected to start in



Four of CSIRO's new ASKAP antennas at the Murchison Radio-astronomy Observatory
Credit: Ant Schinckel, CSIRO

2016, with sets of antennas with complementary frequencies placed on each continent and then networked together. In Australia and New Zealand, SKA Phase 1 will consist of 60 new mid-frequency SKA dishes equipped with phased array feeds, as well as an array of low-frequency antennas. The 36 dishes that make up **CSIRO's** precursor SKA telescope, the Australian SKA Pathfinder (ASKAP), will also be integrated into Phase 1 of the SKA.

In August 2012, the Canberra Deep Space Communication Complex, part of NASA's Deep Space Network, supported the successful landing of NASA's 'Curiosity' Mars Science Laboratory mission on Mars. This partnership continued a long history of Australian ground support for all types of space activities. These range from human spaceflight (from Apollo to recent commercial ISS support missions) and deep space exploration missions like Voyager, to Earth orbiting satellites and Earth

return missions like Hayabusa.

Closer to home, through the **Space Policy Unit**, Australia continues to develop a national focus on space applications that benefit all Australians, from precision agriculture to environmental sustainability and disaster relief. The National Space Industry Policy released last year explains the seven principles behind Australia's space development strategy.

More information:

www.space.gov.au or

www.csiro.au/cass.

DGLR CENTENARY

In 2012, the **German Association for Aeronautics and Astronautics (DGLR)** celebrates its 100th anniversary. The German Aerospace Congress (Deutscher Luft- und Raumfahrt Kongress), held in September this year in Berlin, provided an excellent opportunity to publicise both historical aspects and new technical opportunities for improved products in the aerospace market. More than

500 congress participants exchanged the latest results in aerospace research. Following the DGLR slogan “Informing, Networking, Supporting”, the DGLR is currently also re-shaping its information services for members in order to address students and young engineers in more effective ways. Also on the agenda was the enhancement of international cooperation.

On a global level, DGLR is a member of and contributes to the IAF and the International Council of the Aeronautical Sciences (ICAS). On a European level, it is a member of the Council of European Aerospace Societies (CEAS).

Further information on DGLR and the Congress can be found at www.DGLR.de and www.DLRK2012.de, respectively.

EUMETSAT MSG-3 LAUNCH

On 5 July 2012, MSG-3 was successfully launched from Europe’s spaceport in Kourou, French Guiana. The satellite will secure continuity of real-time weather monitoring from geostationary orbit, a space-based service vital to ensuring safety on Earth, especially in



MG3 integration
Credit: Eumetsat

situations of high-impact weather increasingly experienced around the world due to climate change.

MSG-3 will become part of the operational two-satellite system that **EUMETSAT** operates to support weather forecasters in one of their greatest challenges, i.e. “Nowcasting”. Nowcasting is the detection, in real time, of rapidly developing high-impact phenomena like thunderstorms or fog, predicting their evolution a few hours ahead and issuing warnings accordingly. It requires very frequent high-quality images of the atmosphere that only advanced geostationary satellites can deliver from their fixed position 36,000km above the Earth’s surface. Furthermore, MSG-3 will expand the 30-year climate records accumulated by the Meteosat series since 1981.

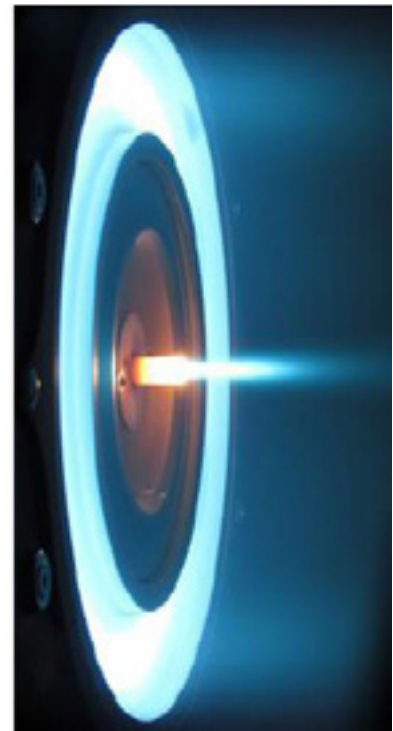
HE SPACE: A GATEWAY TO SPACE JOBS FOR 30 YEARS

HE Space, one of Europe’s key providers of personnel support services to the space business, celebrated 30 years of existence this year.

Although the company’s roots derive from Houston and the Apollo programme, nowadays HE Space is firmly embedded in all major European space projects including Galileo, Meteosat, Ariane 5 and ATV.

HE Space has established offices in Noordwijk, Bremen and Darmstadt to support its major customers (ESA, Astrium and EUMETSAT, respectively) and recently opened a new office in Munich to address the significant and growing space activity in that region.

More: www.hespace.com



PPS-20k ML Hall effect thruster firing with xenon at 23.5 kW in the Pivoine-2G test-bench | Credit: ICARE - CNRS

CROSSING THE 1 NEWTON BARRIER IN ELECTRIC PROPULSION

Electric propulsion encompasses space propulsion technologies that rely on accelerating positively-charged ions to very high speeds. So far, electric thrusters have mostly been employed for station keeping and attitude control of geosynchronous satellites due to a thrust level limited to about 100mN.

The PPS-20k ML thruster, a 20 kW-class Hall effect thruster, was recently designed and built by SNECMA engineers and **CNRS** researchers in the framework of the HiPER European project. The PPS-20k ML is the most powerful electric thruster developed in Europe to date.

It was fired successfully with xenon in the PIVOINE-2G vacuum chamber of ICARE-CNRS, demonstrating remarkable performance. The thrust reached 1.05N with a thrust-to-power ratio as high as 74mN/kW. A



2700s specific impulse was achieved and the total efficiency was in excess of 60%.

Such performance opens the way to new challenges for electric propulsion: orbit transfer manoeuvres, end-of-life deorbiting and exploration of far-off planets and asteroids, to name but a few.

CALL FOR PAPERS FOR ISU'S 17TH ANNUAL INTERNATIONAL SYMPOSIUM "SPACE TECHNOLOGY AND TELE-REACH: BENEFITING HUMANITY ON EARTH AND BEYOND"

Each year, the **International Space University (ISU)** organises a three-day symposium as an interdisciplinary, international forum to help both users and providers of space-related systems to move forward from the discussion of problems to the formulation of innovative solutions.

ISU's next annual symposium will address tele-reach, i.e. technologies and applications which allow remote presence, participation, interaction or control. Emphasis will be placed on exploring the role that space can play in broadening and sustaining the 'reach' of Information and Communication Technology (ICT) systems to benefit humankind in areas such as education, healthcare and environmental management. Looking beyond the socio-economic benefits here on Earth, the scope will also include fields such as tele-presence and tele-operation of remote equipment both on Earth and in space.

Abstracts of around 300 words are invited and should

be sent to symposium17@isu.isunet.edu by 26th October clearly indicating the title, authors' names, affiliations and contact addresses and the session they are interested by:

1. Tele-Reach Needs, Current Provisions and Future Plans
2. Tele-Education
3. Tele-Health
4. Tele-Reach and the Environment
5. Other Applications of Tele-Reach on Earth and in Space
6. Political, Economic, Legal and Ethical Challenges

KAYSER-THREDE SATELLITE IN ORBIT

On 22 July 2012, Germany's TET-1 satellite was successfully delivered to its intended 520km orbit by a Russian Soyuz-Fregat launched from the Baikonur Cosmodrome in Kazakhstan. The 120kg spacecraft is healthy with all systems operating nominally. During its one-year mission, the Technology Experiment Carrier, TET-1, will test 11 pieces of new space hardware in their operational environment.

The TET platform has been qualified according to ECSS standards and is highly versatile and expandable to fit the needs of future missions for science, Earth observation and space weather.

Kayser-Threde, an OHB company, was selected by the German space agency, DLR, as the satellite's prime contractor and was also responsible for the satellite's launch and mission support phases. Collaborating with Kayser-Threde in the TET-1 project, which was funded by BMWi, are Astro- und Feinwerktechnik Adlershof GmbH and DLR's German Space

Operation Center.

KYUTECH SATELLITE SETS NEW WORLD RECORD

On 18 May 2012, Japan's **Kyushu Institute of Technology (Kyutech)** launched its 7kg HORYU-II satellite to a 680km sun-synchronous orbit aboard an H2A rocket. On 8 July, HORYU-II succeeded in its main mission, the photovoltaic generation of power at a voltage of 300V. Indeed, it was confirmed that the payload - 66 tiny silicon cells connected in series - generated power at nearly 350V during 30 minutes of solar illumination.

The generation of power at 350V set a new world record, the highest previous photovoltaic power generation voltage having been 160V, achieved on the International Space Station. It has been known that photovoltaic power generation beyond 200V leads to arcing at the solar array surface. HORYU-II is testing new designs of solar array that can prevent arcing even at 300V. The high-voltage technology will contribute to the realisation of high-power electric propulsion for large space platform applications, such as a space hotel, a space factory or a space solar power system.

SECURE WORLD FOUNDATION SPONSORS TWO 2012 CONFERENCES

Pursuing its goal of increasing international cooperation in space activities, the **Secure World Foundation (SWF)** is sponsoring two important conferences in Brussels this autumn. In partnership with the Space Policy Programme at the Institut français des relations internationales (Ifri), SWF will hold a conference

on 13 September under the banner “International Relations and Space: the European approach”. With many contemporary events combining to create challenges for international cooperation, the conference will look at the growing pressures on Europe to take positions on key issues affecting international space policy.

Again working with Ifri, on 30 October 2012 SWF will organise a workshop on the political, commercial and legal aspects of On Orbit Servicing (OOS) and Active Debris Removal (ADR). This conference will look at diplomatic, legal, safety and policy challenges that must be dealt with as OOS and ADR become technically feasible options.

More at <http://swfound.org/events/2012/international-relations-and-space-the-european-approach> and at <http://swfound.org/events/2012/on-orbit>.

SELM'S QB50 CUBESATS NETWORK

QB50 is an international network of 50 double CubeSats for multi-point, in-situ, long-duration measurements in the lower thermosphere and re-entry research projects. It is led by the von Karman Institute for Fluid Dynamics (VKI), whilst its Asian coordinator is the **Shaanxi Engineering Laboratory for Microsatellites (SELM)**, part of the Northwestern Polytechnical University, a professional scientific research and training centre in China.

The scientific objective of QB50 is to study the in-situ temporal and spatial variations of a number of key constituents and parameters in the lower thermosphere using a network of double CubeSats. It will also study the re-entry process by measuring key parameters during

re-entry and by comparing predicted and actual CubeSat trajectories and orbital lifetimes. The project has been approved under the EU's FP7 programme.

As Asian coordinator, SELM is one of the three Parallel Mission Control Centres for all 50 CubeSats, the other two being at VKI, Stanford. Currently, a 2U Cubesat for the QB50 network is under development by SELM and will be launched in 2015.

SPACE GENERATION CONGRESS 2012

The **Space Generation Advisory Council (SGAC)** seeks to employ the creativity and vigour of the next generation in advancing humanity

most pressing issues affecting the space community.

SGC participants take part in one of five working groups - each addressing a separate issue - in order to create a presentation for representatives of the space sector. The SGC will also produce a report for presentation to the United Nations Committee On the Peaceful Uses of Outer Space (UN-COPUOS) later in the year.

NEW GRADUATE COURSE AT GEORGE WASHINGTON UNIVERSITY ON HUMAN HEALTH IN SPACE

Aerospace medicine is an exciting medical specialty that focuses on



Participants at the Space General Congress 2011

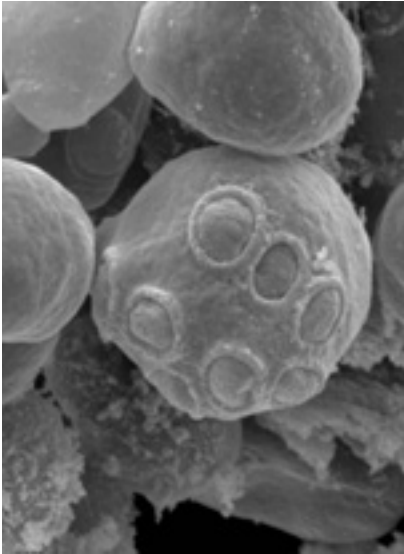
through the peaceful uses of outer space. One of the key ways the organisation has achieved this over the past decade is through the Space Generation Congress, held annually prior to the International Astronautical Congress. The 2012 SGC will be held from 27 to 29 September in Naples, Italy.

SGC is a chance for like-minded students and young professionals from around the world to meet and an opportunity for them to share their views and opinions in tackling some of the

the health, safety and performance of humans involved in air and space travel. In contrast to traditional medicine, it is the study of what happens to physiologically normal individuals placed in an extremely abnormal environment where they are subjected to stressors such as microgravity, radiation or G-forces.

Dr Kris Lehnhardt, an Attending Physician and Assistant Professor in **GWU's** Department of Emergency Medicine, previously trained with NASA and CSA Flight Surgeons, has designed this new

course (EHS 6227: Introduction to Human Health in Space) at the university. The course will be taught in an interdisciplinary fashion and include elements of



physiology, medicine, law, policy, ethics, engineering and history, to ensure students from any discipline are academically challenged and stimulated.

RUSSIA'S TSNIIMASH CENTRE

A key role of Russia's **Central Research Institute for Machine Building (TsNIImash)** is the command and control of the Russian segment of the International Space Station and the Soyuz and Progress spacecraft that currently deliver crew and supplies to the ISS. The Mission Control Center (MCC) is one of the main departments of the Institute, which itself is a leading scientific and research institution of the Federal Space Agency.

For over 60 years the Institute has participated in the development of practically all Russian launch vehicles, manned spacecraft, orbital stations and unmanned spacecraft. Among other things, it undertakes theoretical and experimental engineering studies, contributes to the formulation of guidelines and priorities for national space activity and technology

development, and studies the impact of manmade space debris.

In addition, TsNIImash has close scientific and technical connections with leading foreign organisations involved in space activity, including those in China, France, India, Japan and the USA.

CELEBRATE WORLD SPACE WEEK, 4-10 OCTOBER 2012

Each year, from 4-10 October, the global space community - represented by organisations in over 50 nations - celebrates World Space Week by holding events to attract global attention to space.

To reach an even greater audience, all space organisations are invited to celebrate World Space Week annually.



To participate, they are encouraged to:

- identify existing 4-10 October events or plan new ones
- enter them into the calendar at www.worldspaceweek.org?SubmitEvent
- use the World Space Week name and logo (www.worldspaceweek.org?logo) in programme materials
- Before WSW, tell the media about their events, and coordinate with others in their area if possible
- After WSW, return to the calendar to report results.

At the Naples IAC, **World Space Week Association** - which supports the UN in the global coordination of this event and signed a partnership agreement with IAF in Cape Town - will distribute teacher guides and posters at the Heinlein stand. A tweet-up is planned for Thursday evening in the IAF Global Networking Forum in the exhibition area.

To all IAF Members

If your organisation is interested in sharing its news and developments with the worldwide space community through the IAF Members' Corner, please send your proposed contributions to newsletter@iafastro.org.

Contributions must be:

- no more than **150-words** long
- preferably include a **high-resolution illustrative image** with corresponding **caption** and **credit**
- relevant **website** address for further information
- to enable member-to-member communication and exchange, include a **contact (title, name, position and generic email address)** for the story

The IAF reserves the right to select, subject to available newsletter space, and edit the proposed contributions.

We look forward to receiving your submissions for the following issue of the IAF newsletter by **1 November 2012**.

The next IAF newsletter will come out in December 2012, with plenty of news from the 2012 IAC.

Interview with Luigi de Magistris, Mayor of Naples

Luigi de Magistris was elected Mayor of Naples in May 2011. Previously, as a Member of the European Parliament, he served as President of the Commission on Budgetary Control and worked on issues such as transparency of investment fund allocation and human rights violations. He talks to us about Naples as the host city for IAC 2012.



Q. What does it mean to the city of Naples, and the surrounding region, that the International Astronautical Congress is being held here this year?

I am very proud and happy that the 63rd IAC is taking place in my city. Naples has an important tradition in the aerospace industry and its metropolitan area hosts 7,000 aerospace industry employees and many of the industry's leading companies. Moreover, the Universities of Naples are renowned in the field of aerospace engineering.

I am particularly proud that Naples is the hometown of the late Professor Luigi G. Napolitano, a former president of the IAF. His heritage demonstrates that our city is deeply committed to the aerospace industry and I believe the IAC will open up new opportunities.

Naples has embraced this conference with enthusiasm and the city is getting ready to host the Congress in the best possible way. I am sure that it will be not only a successful scientific congress, but also a 'flywheel' for the development of tourism and employment. I am also convinced that Naples can show its better face to the world.

Q. What can delegates and other IAC visitors expect to enjoy about this particular IAC, given its location?

Naples is full of hidden treasures and is rich in history and culture. Its historical centre – listed by UNESCO as a World Heritage Site - is endowed with a maze of picturesque alleys enriched with graceful monuments, baroque churches and archaeological ruins dating

back to the Ancient Greeks who founded our town.

Naples flaunts its exceptional setting on the waterfront of via Caracciolo, from where visitors can enjoy the beauty of the sea, the beach and the islands of the Gulf of Naples. One can also enjoy a vibrant atmosphere and experience the dolce vita in the streets, strolling from a cafeteria to a pizzeria. Last but not least, Naples is both the home-town of the pizza and considered to be the place to experience the best espresso in Italy.

Q. Are there any specific local initiatives or attractions being organised for this year's IAC?

Naples is a culturally vibrant city, full of theatres, music venues, sport events, museums and art galleries. During the 63rd IAC, special exhibitions will take place at the fortress of Maschio Angioino, while the waterfront of via Caracciolo (which is usually an open stage for musicians and buskers) will be the amazing setting for musical and sporting events.

Q. How would you summarise the opportunity offered to Naples and the wider region in hosting an international congress such as the IAC?

We have the chance to show the world the image of the Neapolitan Renaissance we are building, via television, the press, the Internet and social networks. It will be an amazing opportunity and I am looking forward to it!